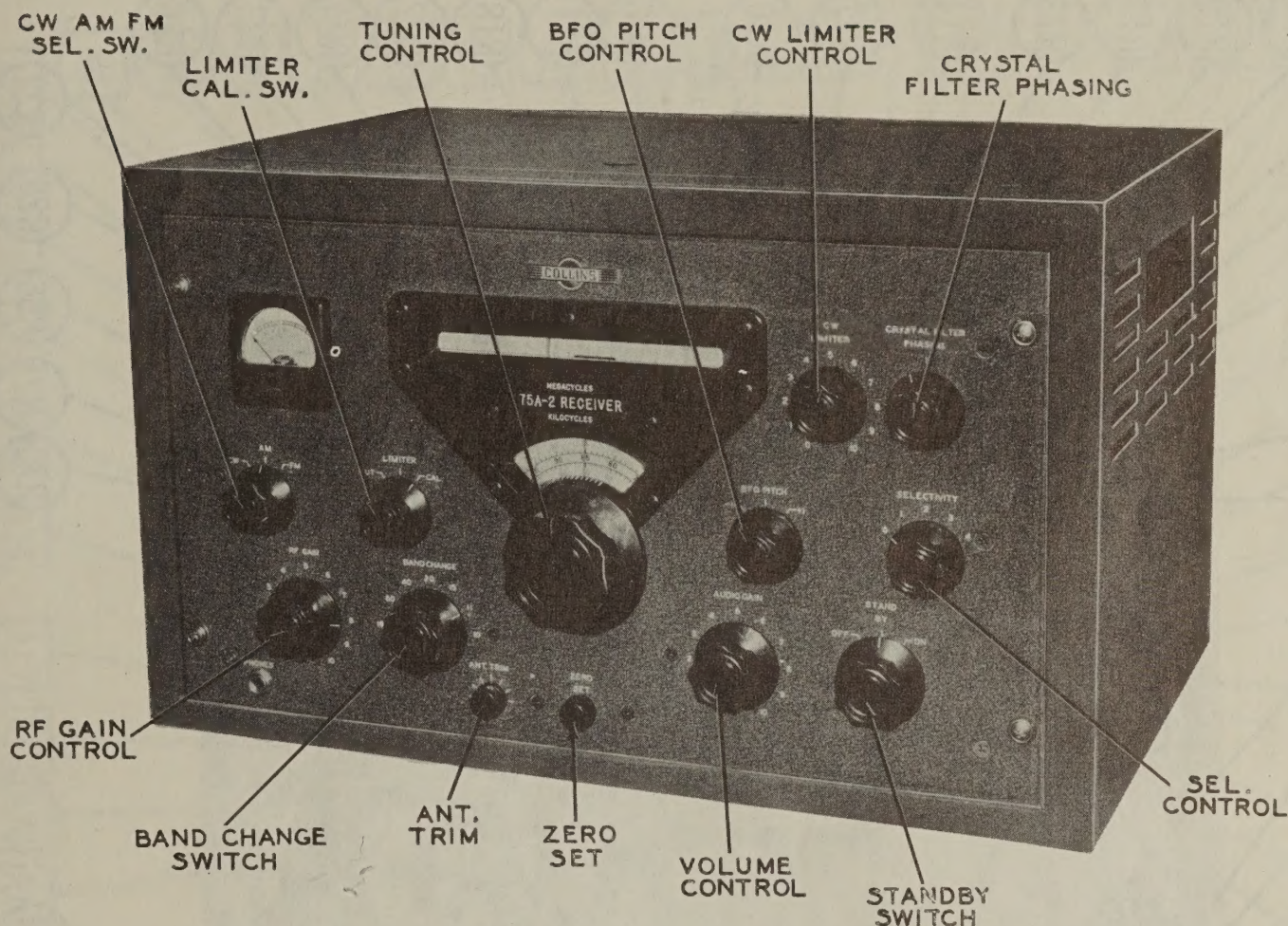




COLLINS  
MODEL 75A-2



COLLINS  
MODEL 75A-2

TRADE NAME	Collins Model 75A-2	
MANUFACTURER	Collins Radio Co., Cedar Rapids, Iowa	
TYPE SET	AC Operated Multi-band Superheterodyne Communications Receiver	
TUBES	Seventeen	
POWER SUPPLY	110-120 Volts AC - 60 Cycle	
RATING	.840 Amp @ 117 Volts AC	
FREQ. RANGES	BAND	FREQ.
	160 Meters	1.5 - 2.5 MC
	80 Meters	3.2 - 4.2 MC
	40 Meters	6.8 - 7.8 MC
	20 Meters	14.0 - 15.0 MC
	15 Meters	20.8 - 21.8 MC
	11 Meters	26.0 - 28.0 MC
	10 Meters	28.0 - 30.0 MC

## HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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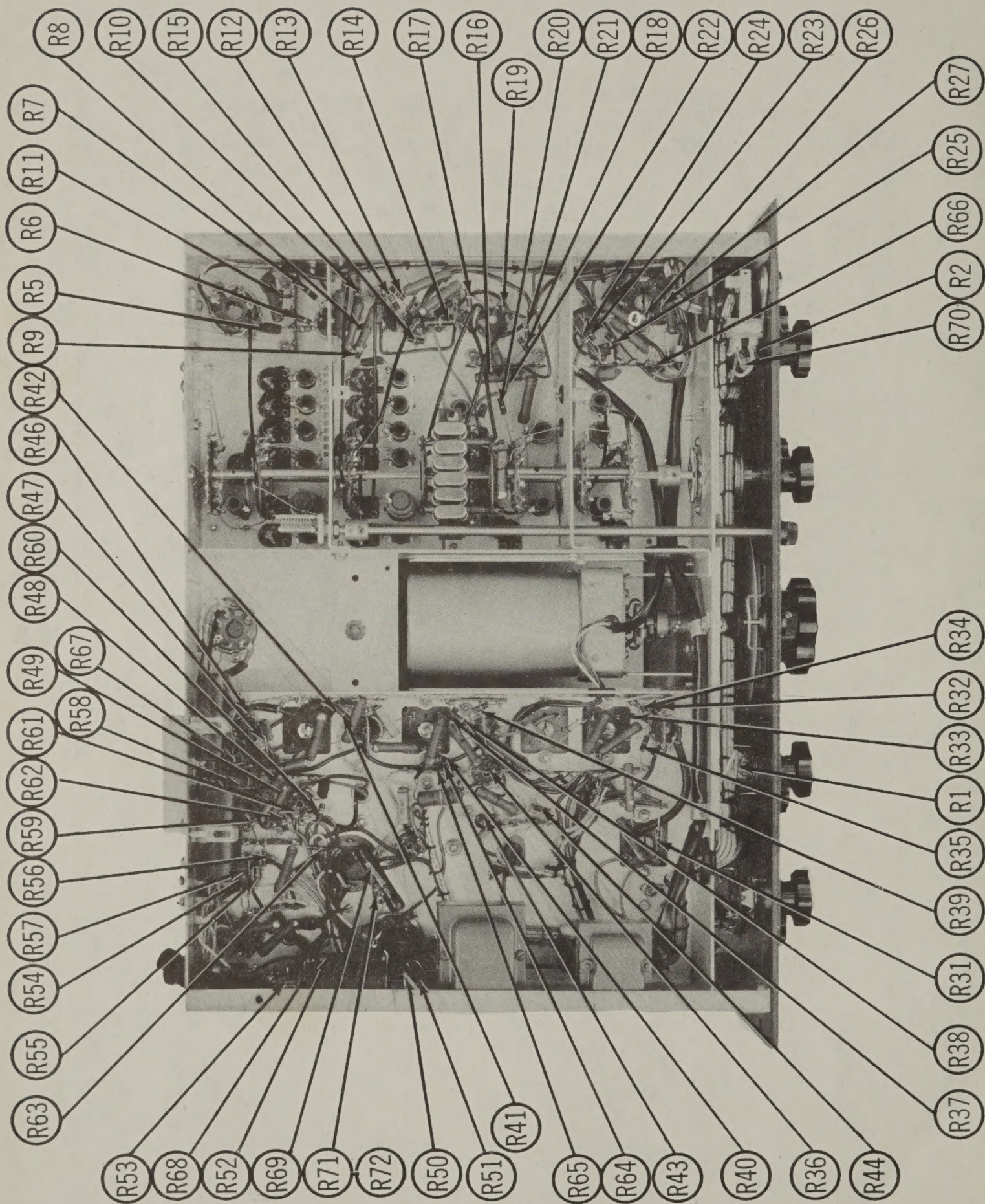
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DATE 6-52

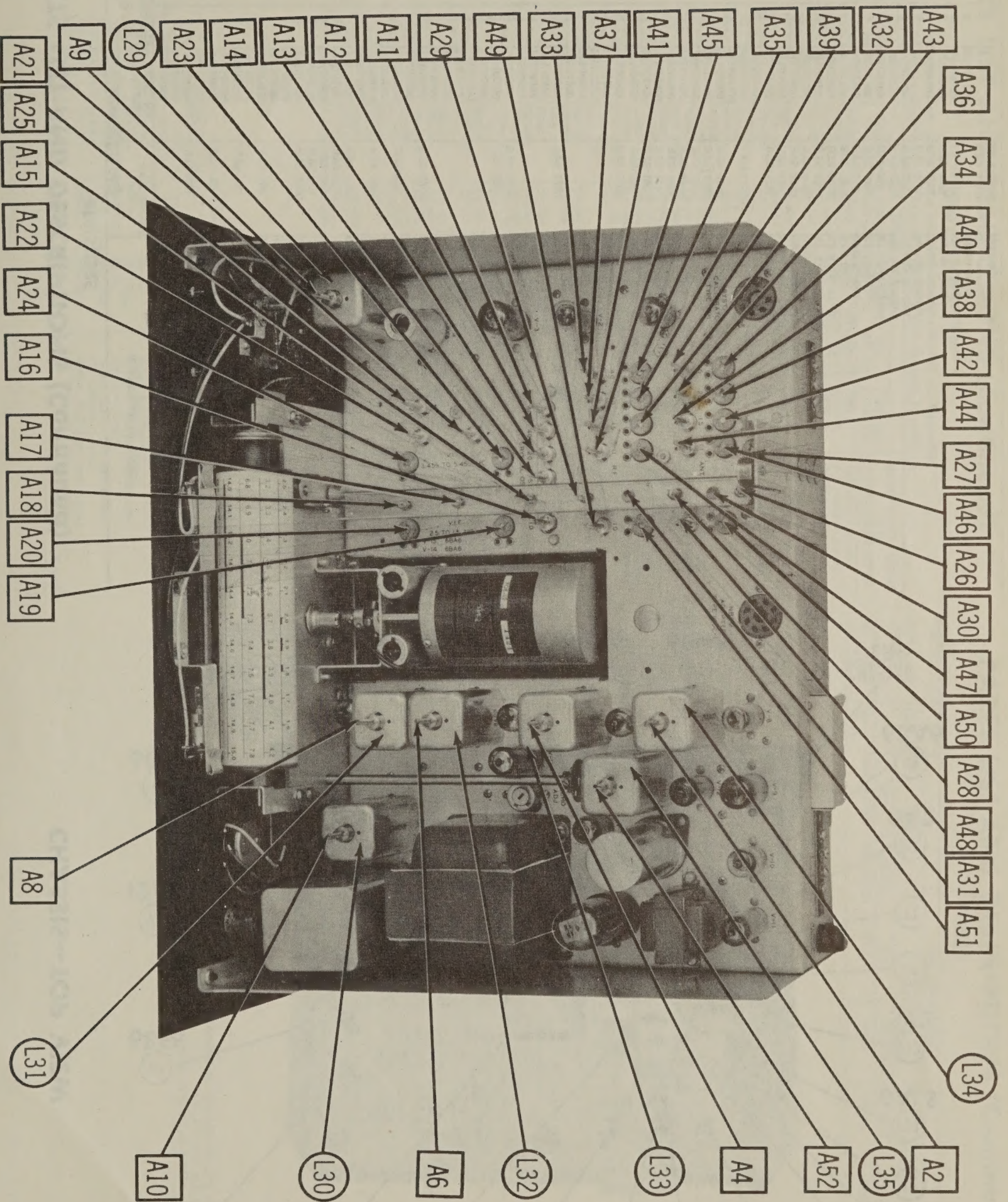
SET 171

FOLDER 4









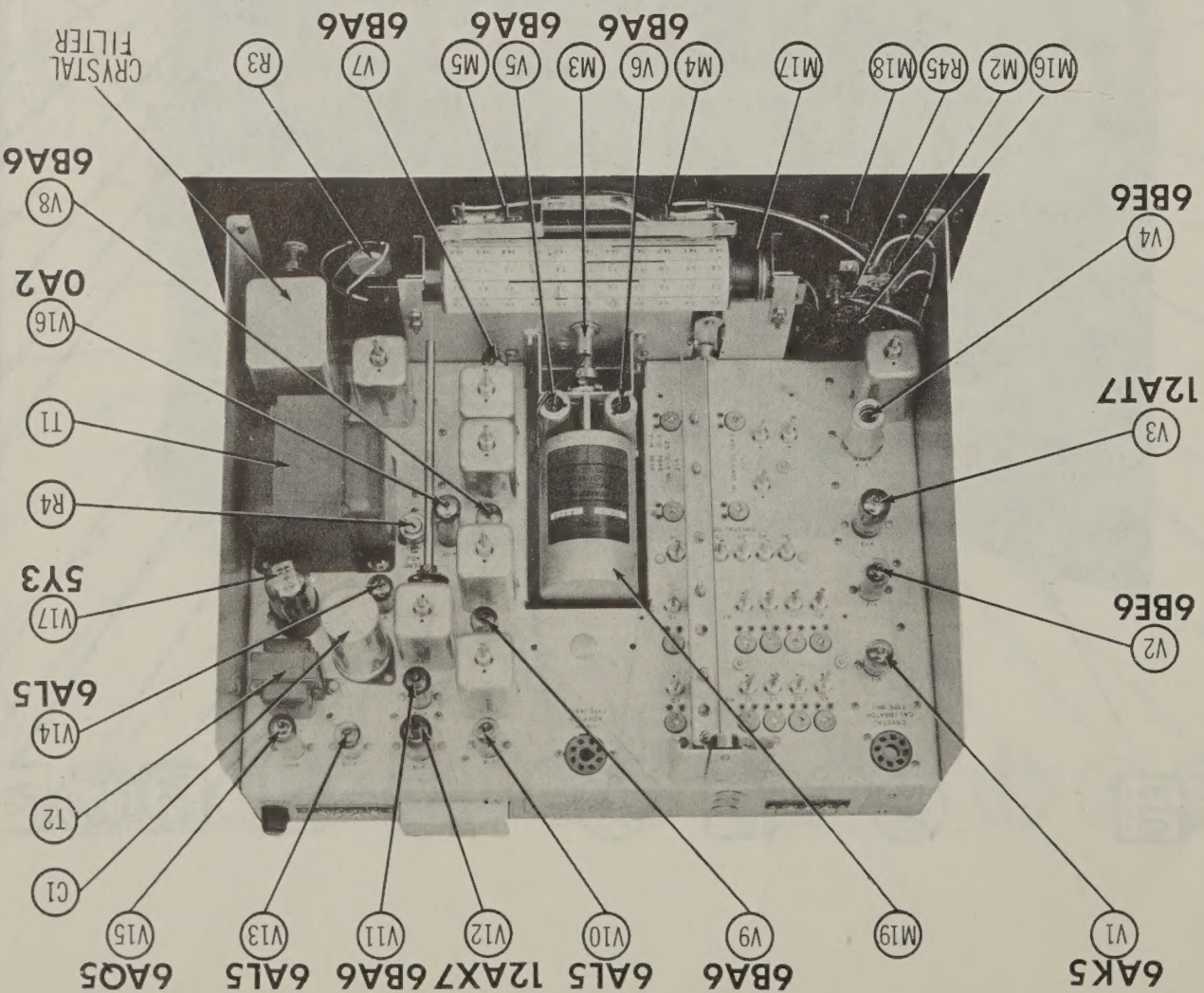


PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	RESISTANCE	WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
				COLLINS PART No.	IRC PART No.	
R5	1Meg	745121200	1			RF Amp. Grid
R6	1Meg	745121200	1			RF Amp. Grid
R7	120K	745104800	1			RF Amp. Cathode
R8	33K	745114900	1			RF Amp. Screen
R9	2200	745103000	1			RF Amp. Plate Decoupling
R10	47K	745103000	1			Parasitic Suppressor
R11	10K	745103000	1			AVC Network
R12	470K	74512800	1			1st. Mixer Grid
R13	560K	745107600	1			1st. Mixer Cathode
R14	10K	74512800	1			1st. Mixer Screen
R15	22K	745114200	1			1st. Mixer Injection Grid
R16	2200K	745110000	1			1st. Mixer Plate Decoupling
R17	330K	745106500	1			Osc. Cathode
R18	330K	745106500	1			Osc. Cathode
R19	4700K	74511400	1			Osc. Grid
R20	2200K	745110000	1			Osc. Plate Decoupling
R21	47K	745103000	1			Parasitic Suppressor
R22	1000K	745308600	1			Decoupling
R23	100K	745117000	1			2nd. Mixer Injection Grid
R24	470K	745107200	1			2nd. Mixer Cathode
R25	33K	745114900	1			2nd. Mixer Screen
R26	2200K	745110000	1			2nd. Mixer Plate Decoupling
R27	100K	745117000	1			2nd. Mixer Transformer Shunt
R28	33K	745114900	1			Selectivity Network
R29	5600K	74511800	1			Selectivity Network
R30	1500K	745109300	1			Selectivity Network
R31	10K	74512800	1			1st. IF Amp. Cathode
R32	150K	745105100	1			1st. IF Amp. Grid
R33	2200K	74510000	1			1st. IF Amp. Plate Decoupling
R34	47K	74511600	1			1st. IF Amp. Screen
R35	68K	745116300	1			Voltage Divider
R36	10K	74512800	1			2nd. IF Amp. Grid
R37	2200K	745110000	1			2nd. IF Amp. Plate Decoupling
R38	22K	745114200	1			2nd. IF Amp. Screen
R39	68K	745116300	1			Voltage Divider
R40	10K	74512800	1			3rd. IF Amp. Grid
R41	47K	745116600	1			3rd. IF Amp. Screen
R42	2200K	745110000	1			3rd. IF Amp. Plate Decoupling
R43	150K	745105100	1			3rd. IF Amp. Cathode
R44	100K	745104400	1			Meter Shunt
R45	100K	745104400	1			Meter Shunt
R46	100K	745117000	1			AVC Diode Load
R47	470K	745119800	1			AVC Filter
R48	120K	745117400	1			AVC Filter
R49	100K	745117000	1			AVC Filter
R50	2200K	745110000	1			AVC Amp. Cathode
R51	100K	745504400	1			Bias Network
R52	350K	710135020	1			Bias Network
R53	120K	745504800	1			Bias Network
R54	47K	74511600	1			Diode Det. Load
R55	47K	74511600	1			Diode Det. Load
R56	470K	745119800	1			Diode Filter
R57	470K	745119800	1			Diode Filter
R58	6600K	745112100	1			AF Amp. Cathode
R59	220K	745118400	1			AF Amp. Plate
R60	150K	745117700	1			BFO Grid
R61	33K	745114900	1			BFO Screen
R62	100K	745117000	1			BFO Plate
R63	10K	745112800	1			BFO Decoupling
R64	220K	745118400	1			Voltage Divider
R65	10K	745112800	1			Voltage Divider
R66	220K	745112800	1			Voltage Divider
R67	66K	745116300	1			Voltage Divider
R68	100K	745117000	1			Output Grid
R69	2500K	710003000	1			Voltage Regulator Plate
R70	10K	745500200	1			Phone Shunt
R71	3900K		1			Bias Network
R72	3900K		1			Bias Network

CHASSIS—TOP VIEW





PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA						IDENTIFICATION AND INSTALLATION NOTES
		COLLINS PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNEIL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C40	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	2nd. Mixer Screen
C41	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	2nd. Mixer Cathode
C42	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	RF Bypass
C43	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	RF Bypass
C44	10	500	1469-00001	D6-103	5R5Q1	GP2-333-103	MS-41	Crystal Filter Shunt
C45	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	AVC Filter
C46	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	1st. IF Amp. Plate
C47	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	1st. IF Amp. Screen
C48	5	916438400	SI5NP0	TCZ-4.7	SI5NP0	NPOK-050		IF Coupling
C49	5	916438400	SI5NP0	TCZ-4.7	SI5NP0	NPOK-050		IF Coupling
C50	5	916438500	SI5NP0	TCZ-4.7	SI5NP0	NPOK-050		IF Coupling
C51	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	AVC Filter
C52	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	2nd. IF Amp. Plate
C53	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	2nd. IF Amp. Screen
C54	10	500	1468-00001	D6-103	5W5Q1	GP2-333-103	5HK-SI	IF Coupling
C55	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	AVC Filter
C56	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	3rd. IF Amp. Plate
C57	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	3rd. IF Amp. Screen
C58	1	150	P288-1	D6-100	P12P1	GP1K-100	2TM-P1	IF Coupling
C59	10	500	1468-00001	D6-100	5W5Q1	GP1K-100	2TM-P1	IF Coupling
C60	100	500	1469-0001	D6-103	5R5Q1	GP2-333-103	MS-31	IF Coupling
C61	100	500	1469-0001	D6-103	5R5Q1	GP2-333-103	MS-31	BFO Grid Cap
C62	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	BFO Screen
C63	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	RF Bypass
C64	10	500	1469-00001	D6-103	5R5Q1	GP2-333-103	MS-41	BFO Coupling
C65	1	200	P288-1	D6-104	P12P1	GP2-333-103	2TM-P1	AVC Filter
C66	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	AVC Amp. Filter
C67	1	200	P288-1	D6-104	P12P1	GP2-333-103	2TM-P1	AVC Filter
C68	330	500	1469-00035	D6-331	P12P1	GP2K-331	2TM-P1	Diode RF Filter
C69	1	200	931033300	D6-104	TM55SI	GP2-333-103	5HK-SI	Noise Limiter Filter
C70	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	Audio Coupling
C71	100	500	912043500	D6-101	5W5T1	GP1K-101	2TM-P5	AF Amp. Grid Filter
C72	5	200	931016900	D6-103	P12P5	GP2-333-103	5HK-SI	AF Amp. Cathode
C73	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	Audio Coupling
C74	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	Audio Coupling
C75	100	500	1468-0001	D6-103	5W5T1	GP1K-101	5HK-SI	Audio Output Grid
C76	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	2TM-P1	Audio Output Plate
C77	1	150	P288-1	D6-104	P12P1	GP2-333-103	5HK-SI	CW Noise Limiter Cathode
C78	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	RF Bypass
C79	5	600	P288-1	D6-104	P12P5	GP2-333-103	2TM-P1	RF Bypass
C80	1	150	931023900	D6-103	P12P1	GP2-333-103	5HK-SI	Bias Filter
C81	10000	913056600	SIU0000	D6-103	TM55SI	GP2-333-103	5HK-SI	Line Filter

† Some Models use 47MMMF in this application (Part No. 912047100)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	COLLINS PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
RIA	500KΩ	$\frac{1}{2}$	376-4499-00	Q13-133	AG-60-Z	B-60	Audio Gain Control
B	Shaft	$\frac{1}{2}$	Not Req.	Not Req.	RS-2	Not Req.	Attach to R1A per instructions
RIA	10KΩ	$\frac{1}{2}$	376-3522-00	Q11-116	AM-27-S	B-14	RF Gain Control
B	Shaft	$\frac{1}{2}$	Not Req.	Not Req.	RS-2	Not Req.	Attach to R2A per instructions
RIA	10KΩ	$\frac{1}{2}$	376-4022-00	Q14-116	AM-30-V	B-17	CW Limiter Control
B	Shaft	$\frac{1}{2}$	Not Req.	Not Req.	RS-2	Not Req.	Attach to R3A per instructions
R4	100Ω	1	377-0122-00	Not Req.	Not Req.	Not Req.	"S" Meter Zero Adjustment Control - Wire Wound

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				BUSS PART No.
			COLLINS PART No.	HOLDER	FUSE	HOLDER	
M1	3AG	2A. 250V.	264 4070 00	265 1002 00	312002	342001	FUSE HOLDER HKP

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					COLLINS PART No.		
M2	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47
M3	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47
M4	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47
M5	Bayonet	6-8	.15	Brown	262 4070 00		Type No. 47

MISCELLANEOUS

ITEM No.	PART NAME	COLLINS PART No.	NOTES
M6	Crystal	291 8070 00	5.7MC
M7	Crystal	291 8071 00	9.3MC
M8	Crystal	291 8072 00	16.5MC
M9	Crystal	291 8073 00	23.3MC
M10	Crystal	291 8074 00	31.455MC
M11	Crystal	291 8075 00	33.455MC
M12	Crystal	291 5957 00	455KC
M13	Switch	259 0363 00	Off - Stand By - On
M14A	Switch	269 1294 00	Variable IF Selecting
B	Bandswitch	269 1294 00	Variable IF Selecting
C	Bandswitch	269 1293 00	Variable IF Selecting
D	Bandswitch	269 1293 00	Variable IF Selecting
E	Bandswitch	269 1293 00	Variable IF Selecting
F	Bandswitch	269 1293 00	Variable IF Selecting
G	Bandswitch	269 1293 00	Variable IF Selecting
H	Bandswitch	269 1293 00	Variable IF Selecting
M15	Switch	259 0415 00	Antenna Coil Selecting
M16	Switch	259 0416 00	Selectivity
M17	Switch	259 0417 00	CW-AM-FM
M18	"S" Meter	458 0044 00	Limiter
M19	VFO Assembly	70E-12	1 MA-50Ω±20% DC Res.
M20	Variable Air Trimmer	922 0033 00	Hermetically Sealed
	Trimmers	917 1038 00	Antenna (2.6-19.7MMF)
	Trimmers	917 1038 00	(8-50MMF) (Alignment Adjustments A19, A20, A23, A24, A27, A30, A31, A34, A35, A38, A39, A42, A43)
	Trimmers	917 1038 00	(6-25MMF) (Alignment Adjustments A46, A47, A50, A51)



PARTS LIST AND DESCRIPTIONS  
TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		NOTES
		COLLINS PART No.	STANDARD REPLACEMENT	
V1	RF Amplifier	257 0040 00	6AK5	
V2	1st. Mixer	257 0048 00	6BE6	
V3	Crystal Osc.	255 0205 00	12AT7	
V4	2nd. Mixer	257 0048 00	6BE6	
V5	VF Oscillator	235 0185 00	6BA6	
V6	Buffer	255 0185 00	6BA6	
V7	1st. IF Amplifier	255 0185 00	6BA6	
V8	2nd. IF Amplifier	255 0185 00	6BA6	
V9	3rd. IF Amplifier	255 0185 00	6BA6	
V10	Detector-AVC	257 0018 00	6AL5	
V11	BFO	255 0185 00	6BA6	
V12	AVC Amplifier	255 0201 00	12AX7	
V13	Noise Limiter	257 0018 00	6AL5	
V14	C-W Noise	257 0018 00	6AL5	
V15	Audio Output	255 0195 00	6AL5	
V16	Volt. Regulator	257 0252 00	6A45	
V17	Rectifier	255 0157 00	5Y3GT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA		NOTES
		COLLINS PART No.	AEROVOX PART No.	
C1A	40	183100900	AFH2-57	
B	40	183104500	PRSI50/50	
C2	50	183104200	PRSI50/20	
C3	20	183105300		
C4	390	183105300		
C5	650	1831054800		
C6	270	1831052400		
C7	120	1831050100		
C8	68	1831048300		
C9	100	1831049500		
C10	10000	1831056600		
C11	10000	1831056600		
C12	10000	1831056600		
C13	650	1831054800		
C14	270	1831052400		
C15	120	1831050100		
C16	68	1831048300		
C17	10000	1831056600		
C18	10	1831043200		
C19	10000	1831056600		
C20	10000	1831056600		
C21	100	1831049500		
C22	220	1831051900		
C23	10000	1831056600		
C24	220	1831051900		
C25	120	1831050100		
C26	120	1831050100		
C27	100	1831049500		
C28	47	1831047100		
C29	39	1831046500		
C30	56	1831056600		
C31	10000	1831056600		
C32	330	1831055000		
C33	10000	1831056600		
C34	4	18310436100		
C35	1	18310436100		
C36	56	18310436100		
C37	330	1831055000		
C38	270	1831055000		
C39	10000	1831056600		

PARTS LIST AND DESCRIPTIONS (Continued)  
TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	COLLINS PART No.	STANCOR PART No.	CHICAGO PART No.
T1	117VAC ① .84A	700VCT 110ADC	5VAC ② 2A	662-0017-00		P-3153 ①

① Drill new mfg. holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	SEC.	COLLINS PART No.	STANCOR PART No.	CHICAGO PART No.
T2	3.6KΩ ② .4Ω	500Ω 290Ω	23Ω Tapped	667-0018-00		

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000 μ)	COLLINS PART No.	
L1	.110ADC	100Ω	3 Henries	668-0020-00	
L2	.055ADC	270Ω	5 Henries	668-0019-00	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	COLLINS PART No.	MERT PART No.	
L3	Ant. Coil	.02	.82	504 7038 002		160 Meter
L4	Ant. Coil	.10	.10	504 7039 002		80 Meter
L5	Ant. Coil	.10		504 7000 001		40 Meter
L6	Ant. Coil	.10		504 6999 001		20 Meter
L7	Ant. Coil	.10		504 6997 001		15 Meter
L8	Ant. Coil	.10		504 6996 001		10 Meter
L9	Ant. Coil	.10		504 7064 001		Wound on 470 Resistor
L10	Parasitic Supp.	.02		504 7037 002		80 Meter
L11	RF Coil	.10		504 7000 001		40 Meter
L12	RF Coil	.10		504 6999 001		20 Meter
L13	RF Coil	.10		504 6997 001		15 Meter
L14	RF Coil	.10		504 6996 001		10 Meter
L15	RF Coil	.10		504 6996 001		80 Meter
L16	RF Coil	.10		504 7004 001		40 Meter
L17	Osc. Coil	.10		504 6998 001		20 Meter
L18	Osc. Coil	.02		504 6997 001		15 Meter
L19	Osc. Coil	.02		504 7001 001		10 Meter
L20	Osc. Coil	.02		504 7001 001		10 Meter
L21	Osc. Coil	.02		504 7001 001		10 Meter
L22	Osc. Coil	.02		504 7005 001		Used on 10 and 11 meter band only
L23	Variable IF	.50		504 7002 001		Used on 10 and 11 meter band only
L24	Variable IF	1.70		504 7005 001		Used on 10 and 11 meter band only
L25	Variable IF	1.2		504 7002 001		Used on 10 and 11 meter band only
L26	Variable IF	1.70		504 7002 001		Used on 10 and 11 meter band only
L27	Variable IF	.10		505 1738 001		Used on 10 and 11 meter band only
L28	RF Choke	7.80		240 0073 00		Used on 10 and 11 meter band only
L29	2nd. Mixer	1.70	.60	278 0083 00		Tap ② .30
L30	1st. IF Trans.	4.60		278 0085 00		Tap ② .30
L31	2nd. IF Trans.	1.60		278 0084 00		Tap ② .30
L32	2nd. IF Trans.	1.60		278 0084 00		Tap ② .30
L33	3rd. IF Trans.	1.60		278 0084 00		Tap ② .30
L34	4th. IF Trans.	1.60		278 0084 00		Tap ② .30
L35	BFO Coil	1.70		278 0082 00		Tap ② .20



ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set the pointer, tune in a station of known frequency and adjust pointer setting on the dial cord to coincide with that frequency on the dial scale. Alignment should be done preferably by one familiar with communications equipment and experienced in their alignment. Certain steps of the alignment require the use of a 100 KC frequency standard with an output range from 1.5 to 30 MC and an accuracy of .001% or better.							
455KC IF ALIGNMENT							
Set Audio gain control at minimum. Set RF gain control at maximum. Set CW-AM-FM switch to AM position.							

455 KC IF ADJUSTMENT (SLIGHT MISALIGNMENT)							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1. .001MFD	High side to Pin 1, (grid) of 6BA6 (V7). Low side to chassis.	455KC (unmod.)	160M	Point of non interference	DC probe to Point $\Delta$ . Common to chassis.	A1, A2 A3, A4 A5, A6 A7, A8	Set Crystal selectivity control to "O". Advance signal generator output to just give a noticeable increase in deflection of VTVM. Adjust A1 through A8 for maximum deflection.
2. "	High side to Pin 7, (Grid) of 6BE6 (V4). Low side to chassis.	see remarks	"	"	"	"	Set crystal selectivity switch to "4" and carefully tune signal generator for maximum deflection on VTVM. Attenuate generator to maintain below 8 volts at Point $\Delta$ . Set crystal selectivity control to "O". Adjust A1 through A9 for maximum deflection.
3. "	"	3KC less than Step 2.	"	"	"	A10	Set crystal selectivity control to "1." Adjust generator output to give 5 volts at Point $\Delta$ . Adjust A10 for maximum deflection.

The knob on the phasing control should be set so that minimum hiss is present when positioned at the center of the scale. Continue with Step 6.

455 KC IF ADJUSTMENT (LARGE MISALIGNMENT)							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1. .001MFD	High side to pin 1, (grid) of 6BA6 (V9). Low side to chassis.	455KC (unmod.)	Any	Point of non-interference.	DC probe to Point $\Delta$ . Common to chassis.	A1, A2	Set crystal selectivity control to "O". Advance signal generator output to just give a noticeable increase in deflection of VTVM. Adjust A1 and A2 for maximum deflection.
2. "	High side to pin 1, (grid) of 6BA6 (V8). Low side to chassis.	"	"	"	"	A3, A4	Adjust for maximum deflection.
3. "	High side to pin 1 (grid) of 6BA6 (V7). Low side to chassis.	"	"	"	"	A5, A6, A7, A8	"
4. "	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis.	See remarks	"	"	"		Set crystal selectivity control to "4" and carefully tune signal generator for maximum deflection on VTVM. Attenuate generator to maintain below 8 volts at Point $\Delta$ . Set crystal selectivity control to "O". Adjust A1 through A9 for maximum deflection.
5. "	"	3KC less than Step 4.	"	"	"	A10	Set crystal selectivity control to "1." Adjust generator to give 5 volts at Point $\Delta$ . Adjust A10 for maximum deflection.

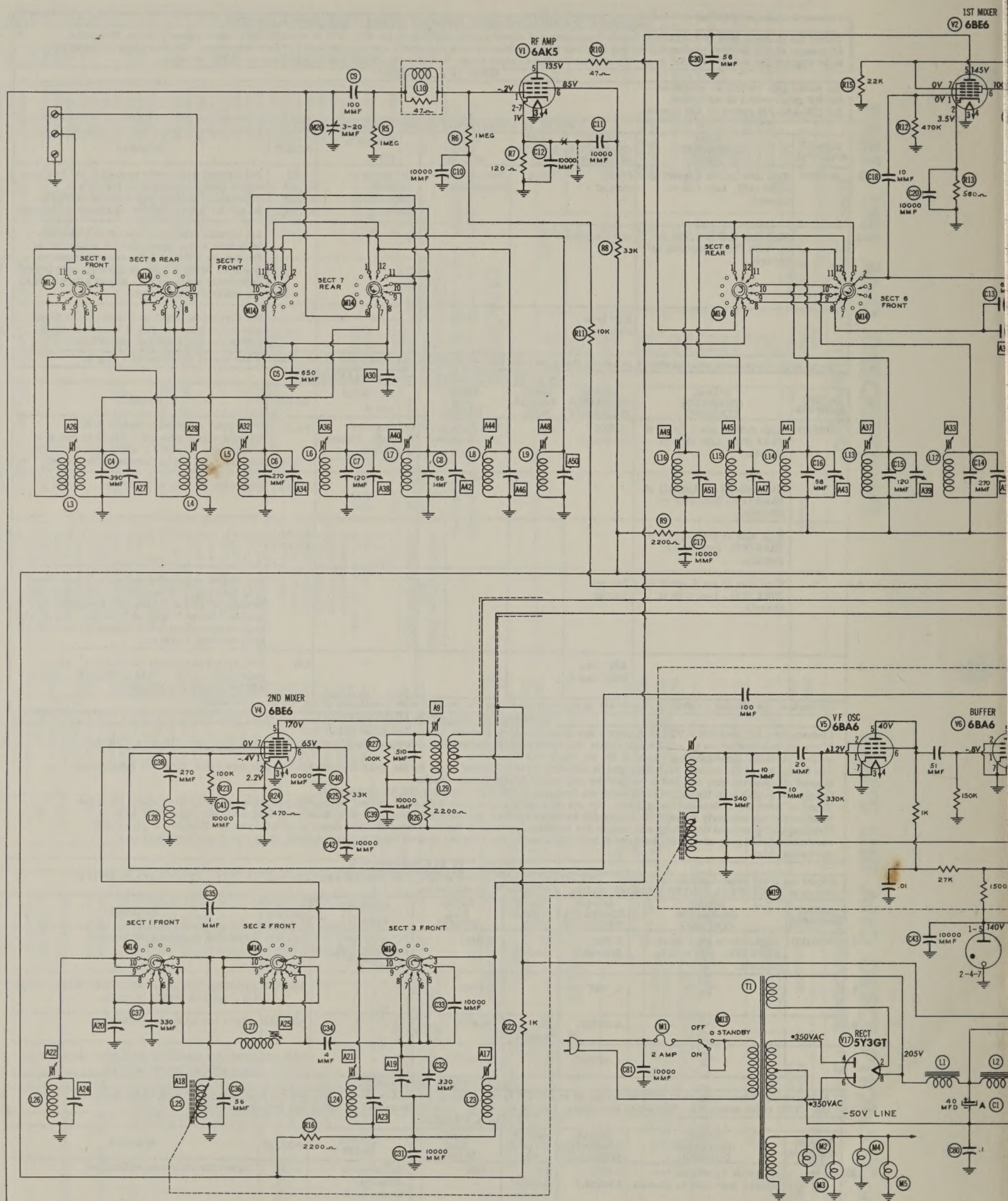
The knob on the phasing control should be set so that minimum hiss is present when positioned at the center of the scale.

CRYSTAL OSCILLATOR ADJUSTMENT							
Connect the DC probe of a VTVM through a one meg. isolating resistor to pin 7 of 6BE6 (V2). Place the band switch on 80 meters and adjust A11 for maximum deflection. Successively adjust A12, A13, A14, A15, and A16 for maximum deflection on the corresponding bands of 40, 20, 15, 11 and 10 meters. The frequency of the crystal oscillator can be adjusted over a limited range by the controls named above (A11 thru A16). After the receiver is aligned this feature may be used to reduce the calibration error between bands. Couple the receiver to the output of an accurate frequency standard providing 100 KC harmonics. Tune the receiver to zero beat with 2 MC. Do not turn the tuning dial or BFO pitch control during the remainder of this adjustment. Turn the band switch successively through the remaining bands and adjust the corresponding control in each case (A11, A12, etc.) for zero beat. Detuning of the crystal oscillator will reduce the injection voltage to the first mixer. This effect is usually small. However if the crystal oscillator should stop oscillating because of this adjustment, the zero set control may be used instead, to get exact calibration of that particular band.							

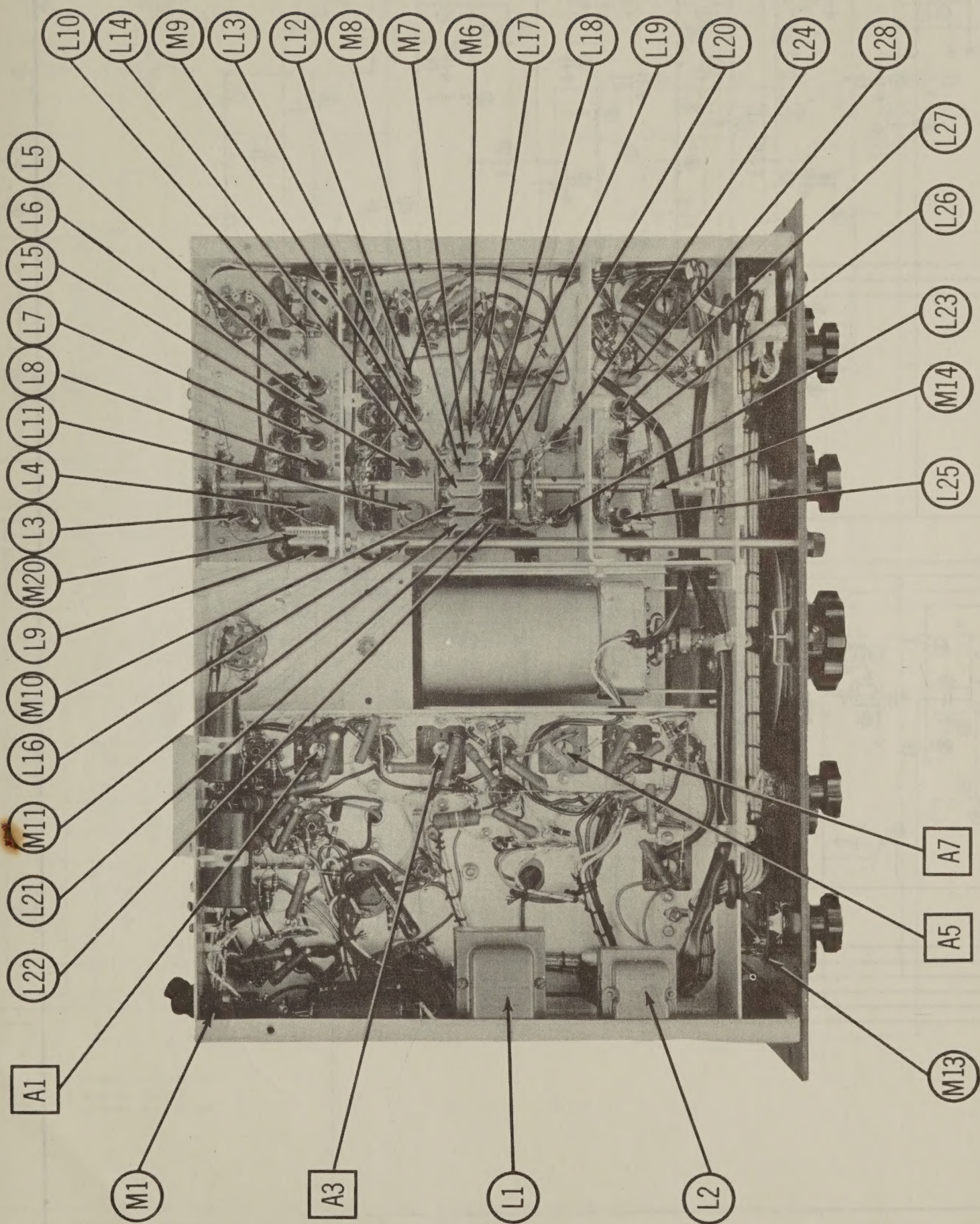
VARIABLE IF ALIGNMENT							
Adjust the front panel controls as follows: OFF-STANDBY-ON switch at "ON", CW-AM-FM switch on "AM", CRYSTAL FILTER SELECTIVITY switch on "O", CRYSTAL FILTER PHASING on line, AUDIO GAIN at maximum.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6. .001MFD	High side to pin 1 (grid) of 6BE6 (V2). Low side to chassis.	1.6MC (unmod.)	80 meters	4.1MC	DC probe to Point $\Delta$ . Common to chassis.	A17, A18	Adjust for maximum deflection.
7. "	"	2.4MC	"	3.3MC	"	A19, A20	Adjust for maximum deflection. Repeat steps 6 & 7 until no change is noted.
8. "	"	3.455MC	10 meters	30.0MC	"	A21, A22	Adjust for maximum deflection.
9. "	"	5.455MC	"	28.0MC	"	A23, A24	Adjust for maximum deflection. Repeat steps 8 & 9 until no change is noted.

"TWEET" TRAP ADJUSTMENT							
A third order tweet appears at 3533 KC in the 80 meter CW band. This is a result of the 5.7 MC crystal beating with the second harmonic of the VFO at the mixer V4. To reduce this effect, turn on the BFO, tune in the tweet and adjust A25 for minimum tweet.							
RF ALIGNMENT							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
10. Direct	High side to antenna terminal. Low side to chassis.	1.6MC (unmod.)	160 meters	1.6MC	DC probe to Point $\Delta$ . Common to chassis.	A26	Adjust for maximum deflection.
11. "	"	2.4MC	"	2.4MC	"	A27	Adjust for maximum deflection. Repeat steps 10 & 11 until no improvement is noted.
12. "	"	3.3MC	80 meters	3.3MC	"	A28, A29	Adjust for maximum deflection.
13. "	"	4.1MC	"	4.1MC	"	A30, A31	Adjust for maximum deflection. Repeat steps 12 & 13 until no improvement is noted.

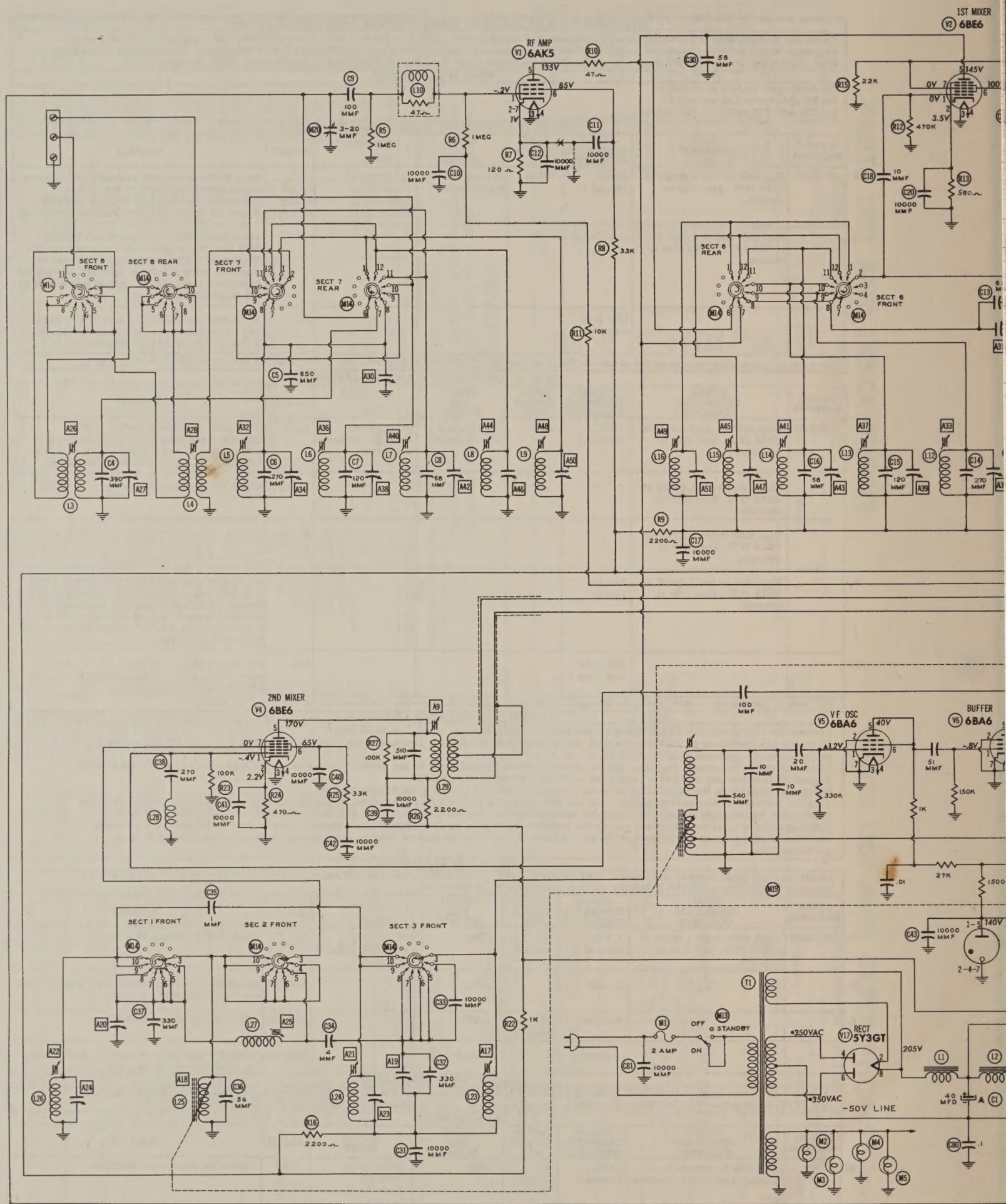




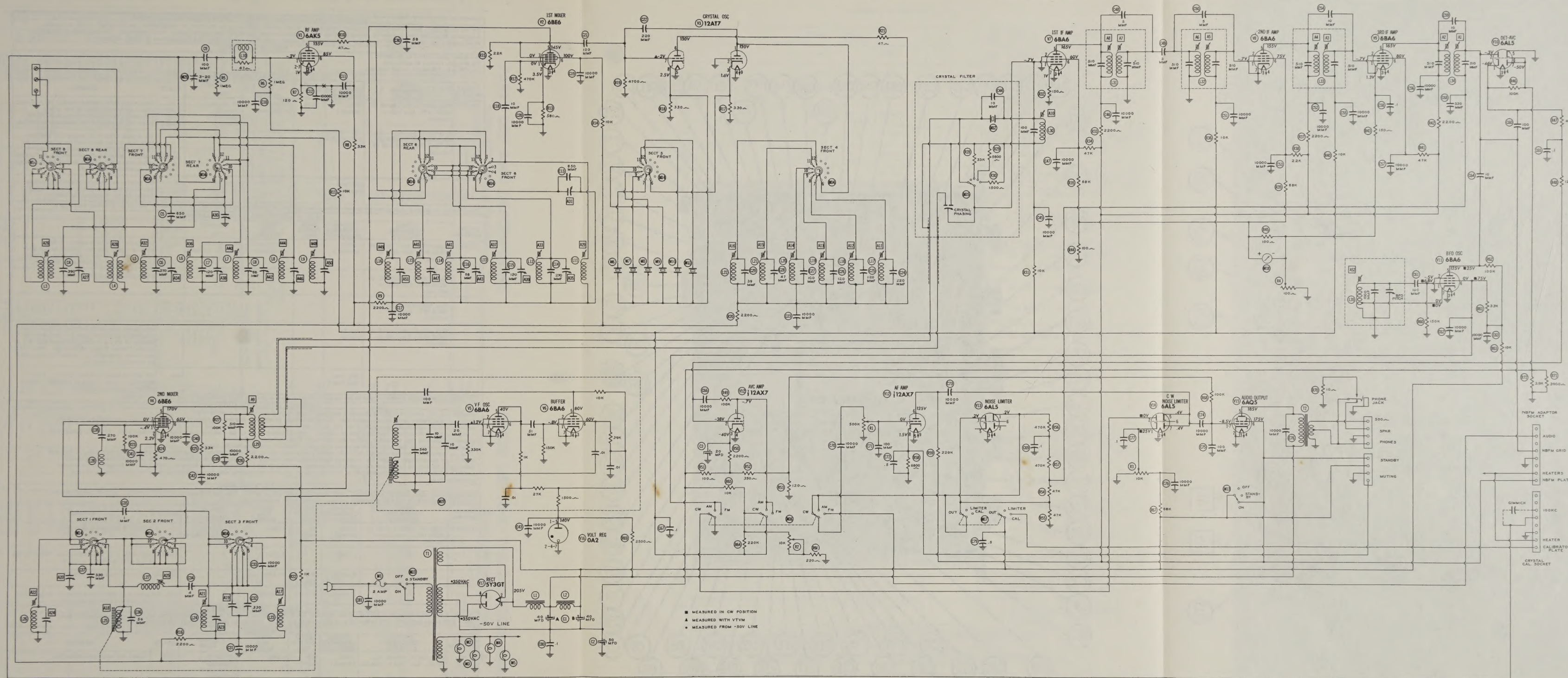






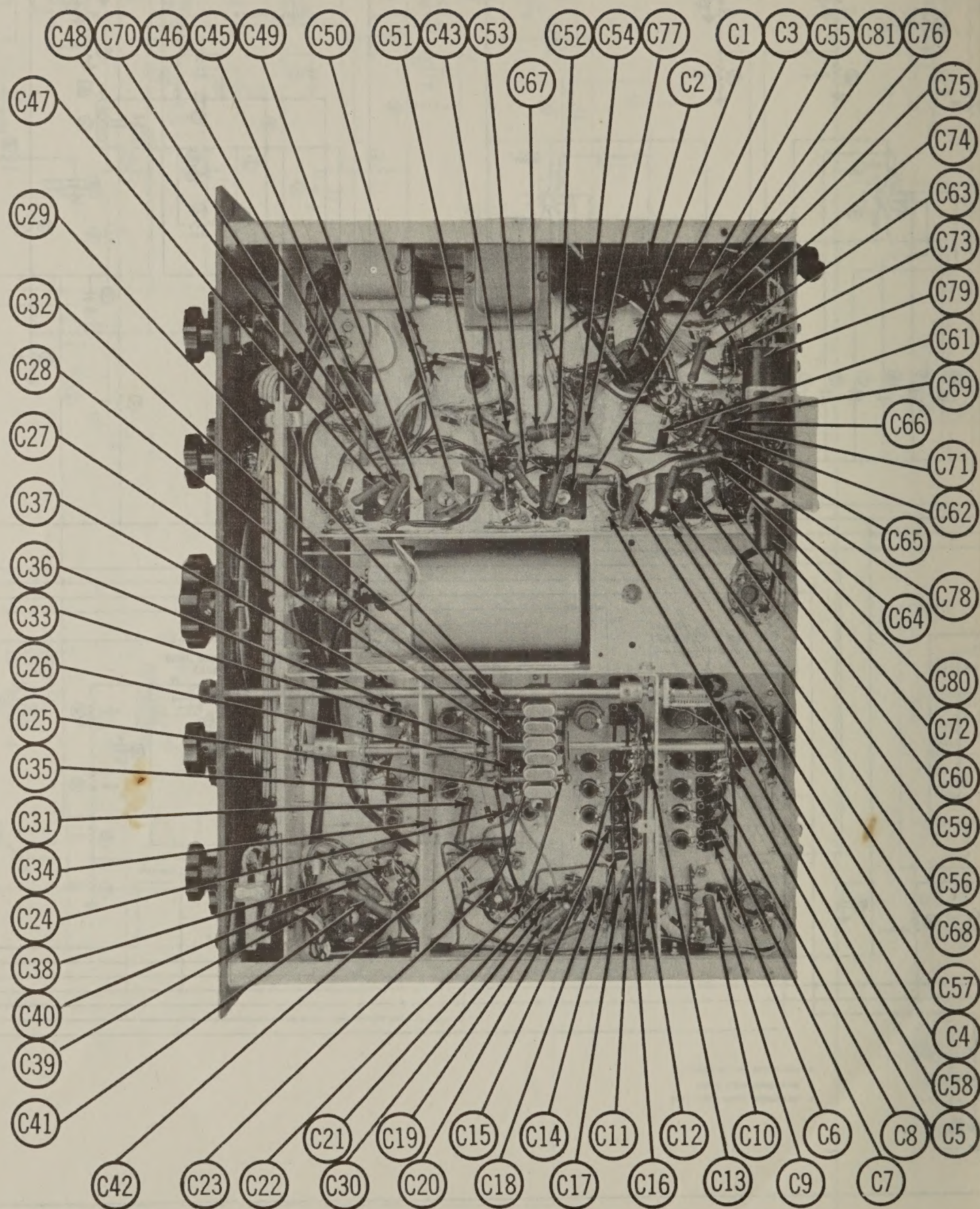






1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of  $\pm 10\%$  in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.







# ALIGNMENT INSTRUCTIONS (cont.)

14.	"	"	6.9MC	40 meters	6.9MC	"	A32, A33	Adjust for maximum deflection.
15.	"	"	7.7MC	"	7.7MC	"	A34, A35	Adjust for maximum deflection. Repeat steps 14 & 15 until no improvement is noted.
16.	"	"	14.1MC	20 meters	14.1MC	"	A36, A37	Adjust for maximum deflection.
17.	"	"	14.9MC	20 meters	14.9MC	"	A38, A39	Adjust for maximum deflection. Repeat steps 16 & 17 until no improvement is noted.
18.	"	"	20.9MC	15 meters	20.9MC	"	A40, A41	Adjust for maximum deflection.
19.	"	"	21.7MC	"	21.7MC	"	A42, A43	Adjust for maximum deflection. Repeat steps 18 & 19 until no improvement is noted.
20.	"	"	26.2MC	11 meters	26.2MC	"	A44, A45	Adjust for maximum deflection.
21.	"	"	27.8MC	"	27.8MC	"	A46, A47	Adjust for maximum deflection. Repeat steps 20 & 21 until no improvement is noted.
22.	"	"	28.2MC	10 meters	28.2MC	"	A48, A49	Adjust for maximum deflection.
23.	"	"	29.8MC	"	29.8MC	"	A50, A51	Adjust for maximum deflection. Repeat steps 22 & 23 until no improvement is noted.

## VFO ADJUSTMENT

The VFO is carefully adjusted and sealed at the factory and should normally not require further adjustment. If the oscillator drifts beyond a point which can be compensated with the zero set control, tune the receiver to an accurate 2000 KC frequency standard, set the vernier dial corrector to mid-scale, loosen two set screws on the oscillator shaft and turn the oscillator shaft until zero beat is obtained. Make the final adjustment on AM position and selectivity control at 4. Adjust the oscillator shaft for maximum indication on "S" meter and tighten screws without disturbing the setting of the oscillator shaft. Check the tuning rate of the VFO by setting the tuning dial to give zero beat with a frequency standard at each end of one tuning range (14 and 15 MC for instance.) The tuning dial travel between these two points should be 10 turns  $\pm$  3 dial divisions. If the error is greater than this the tuning unit should be removed and returned to the factory for adjustment. After installing the repaired oscillator it will be necessary to align the oscillator with the dial. Carefully turn the oscillator shaft to the clockwise stop. Set the vernier dial at 2 MC on the 160 meter band. Turn the BFO on. Couple a 2000 KC frequency standard to pin 7 of 6BE6 (V4). Rotate the oscillator shaft approximately 5 turns counter clockwise until a tweet is heard in the speaker, then adjust to zero beat. Make the final adjustment with controls at AM and selectivity control at 4. Adjust the oscillator shaft for maximum indication on "S" meter and tighten the set screws on the coupler shaft.

## NARROW BAND CONVERSION

This receiver is designed with a band width of 4 KC at 6 db. down and 13 KC at 60 db. down. If extreme selectivity is desired it is possible to convert the 75A-2 receiver to a maximum band width of approximately 2.4 KC at 6 db. down. To convert the set remove the bottom plate and remove the following circuit components: R27, C48, C50 and C54. Repeat alignment as outlined under 455 KC IF ADJUSTMENT (Large Misalignment).

## BROAD BAND CONVERSION

Replace the 4 circuit components removed under NARROW BAND CONVERSION. Construct a "swamping tool" consisting of a .01MFD condenser in series with a 1000 ohm resistor and having an alligator clip at each end.

Set receiver controls as follows:

- CW-FM-AM control to AM.
- Selectivity control to position 2.
- RF gain to full on.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
24.	.001MFD	High side to pin 1, (grid) of 6BE6 (V4). Low side to chassis.	See remarks	Any	Point of non-interference	DC probe to Point $\diamond$ . Common to chassis.	A9	Tune signal generator to frequency of crystal filter (approx. 455KC) as indicated by maximum voltage at Point $\diamond$ . Attenuate generator output to maintain approximately 5 volts at Point $\diamond$ . Adjust A9 for maximum deflection.
25.	"	"	frequency of crystal filter	"	"	"	A7	Place swamping tool from terminal D of L31 to chassis. Adjust A7 for maximum deflection.
26.	"	"	"	"	"	"	A8	Place swamping tool from terminal A of L31 to chassis. Adjust A8 for maximum deflection.
27.	"	"	"	"	"	"	A5	Place swamping tool from terminal D of L32 to chassis. Adjust A5 for maximum deflection.
28.	"	"	"	"	"	"	A6	Place swamping tool from terminal A of L32 to chassis. Adjust A6 for maximum deflection.
29.	"	"	"	"	"	"	A3	Place swamping tool from terminal D of L33 to chassis. Adjust A3 for maximum deflection.
30.	"	"	"	"	"	"	A4	Place swamping tool from terminal A of L33 to chassis. Adjust A4 for maximum deflection.

## ALIGNMENT OF BFO

Alignment of the beat frequency oscillator should be performed after all other frequency controlling elements are aligned. Connect the signal generator to the antenna terminals. Set the crystal filter knob to position 4. With the receiver in AVC position tune in the signal from the generator to exact crystal filter frequency as indicated by a sharp rise in "S" meter reading. Set the BFO pitch control to center. Turn the receiver to CW position and adjust the BFO trimmer A52 for zero beat. If the knobs have been removed the BFO pitch knob may have been incorrectly replaced. It should be at center when its associated tuning capacitor is at half capacity setting.

To check the position of the capacitor proceed as follows: Connect the signal generator to pin 7 of V4. Set the receiver to CW position and rotate the BFO pitch control 180 degrees to each side of zero. The tone should change an equal amount each side of zero. Failure to do so indicates incorrect setting of the knob on the shaft. To correct this, rotate the control until the highest pitch obtainable is found, indicating that the capacitor plates are all in or all out. Loosen the BFO pitch control set screw, turn the knob 90 degrees in either direction, and tighten the set screw. Set the BFO control at zero and again adjust A52 for zero beat. It is possible that the knob is 180 degrees from the correct setting on the shaft. To check this possibility loosely couple the signal generator to the antenna terminals, set the signal at some 100 KC point (as 3700 KC) and, with the receiver on CW position and the BFO pitch control at zero, tune to zero beat. Rotate the BFO knob to +1. Retune the receiver to zero beat. If the new dial setting is 1 KC less than before the BFO knob is on the shaft correctly. If the receiver dial indicates 1 KC more the BFO knob should be rotated 180 degrees on the condenser shaft.

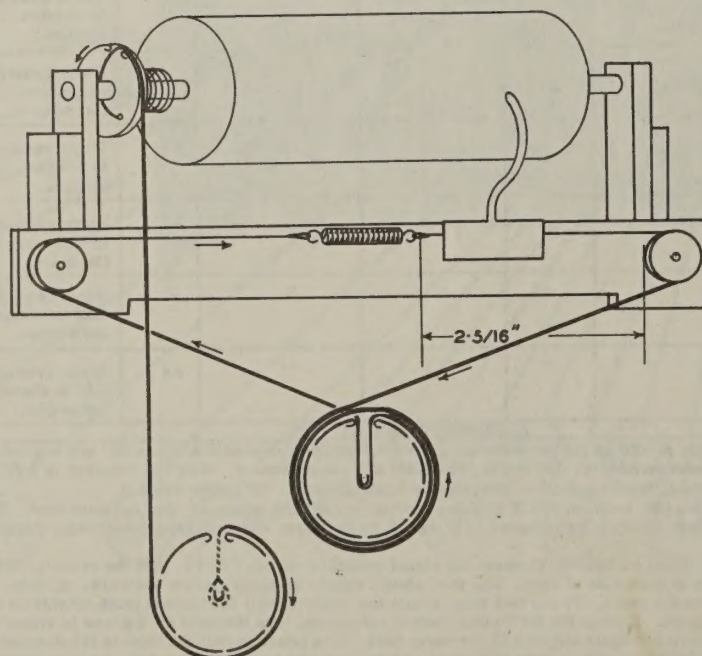


# RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	550K $\Omega$	120 $\Omega$	0 $\Omega$	.1 $\Omega$	†3.6K $\Omega$	†34K $\Omega$	120 $\Omega$		
V 2	6BE6	470K $\Omega$	560 $\Omega$	0 $\Omega$	.1 $\Omega$	†3.6K $\Omega$	†11K $\Omega$	22K $\Omega$		
V 3	12AT7	†3.6K $\Omega$	0 $\Omega$	330 $\Omega$	0 $\Omega$	0 $\Omega$	†3.6K $\Omega$	4.7K $\Omega$	330 $\Omega$	.1 $\Omega$
V 4	6BE6	100K $\Omega$	470 $\Omega$	0 $\Omega$	.1 $\Omega$	†2.6K $\Omega$	†33K $\Omega$	1 $\Omega$		
V 5	6BA6	330K $\Omega$	0 $\Omega$	0 $\Omega$	.1 $\Omega$	†32K $\Omega$	†32K $\Omega$	0 $\Omega$		
V 6	6BA6	150K $\Omega$	0 $\Omega$	.1 $\Omega$	0 $\Omega$	†14K $\Omega$	†43K $\Omega$	0 $\Omega$		
V 7	6BA6	210K $\Omega$	0 $\Omega$	0 $\Omega$	.1 $\Omega$	†2.6K $\Omega$	†28K $\Omega$	150 $\Omega$		
V 8	6BA6	210K $\Omega$	0 $\Omega$	0 $\Omega$	.1 $\Omega$	†2.6K $\Omega$	†18K $\Omega$	0 $\Omega$		
V 9	6BA6	210K $\Omega$	180 $\Omega$	0 $\Omega$	.1 $\Omega$	†2.6K $\Omega$	†47K $\Omega$	180 $\Omega$		
V 10	6AL5	100K $\Omega$	94K $\Omega$	0 $\Omega$	.1 $\Omega$	0 $\Omega$	400 $\Omega$	400 $\Omega$		
V 11	6BA6	150K $\Omega$	0 $\Omega$	0 $\Omega$	.1 $\Omega$	†110K $\Omega$	0 $\Omega$	†43K $\Omega$	.2 $\Omega$	
V 12	12AX7	190K $\Omega$	690K $\Omega$	2.6K $\Omega$	0 $\Omega$	0 $\Omega$	†220K $\Omega$	0 $\Omega$	6.8K $\Omega$	.1 $\Omega$
V 13	6AL5	1Meg	INF	0 $\Omega$	.1 $\Omega$	INF	INF	47K $\Omega$		
V 14	6AL5	10K $\Omega$	■ 0 $\Omega$	0 $\Omega$	.1 $\Omega$	INF	INF	INF		
V 15	6AQ5	100K $\Omega$	0 $\Omega$	0 $\Omega$	.1 $\Omega$	†390 $\Omega$	†370 $\Omega$	100K $\Omega$		
V 16	0A2	†2.6K $\Omega$	0 $\Omega$	INF	0 $\Omega$	†2.6K $\Omega$	INF	0 $\Omega$		
V 17	5Y3GT	INF	16K $\Omega$	INF	†118 $\Omega$	†2.6K $\Omega$	†120 $\Omega$	INF	16K $\Omega$	

ALL MEASUREMENTS TAKEN IN "AM" POSITION UNLESS NOTED  
 BAND SWITCH 80 METERS POSITION  
 M13 IN "ON" POSITION  
 M15 AT ZERO POSITION  
 M17 AT LIMITER POSITION  
 RF GAIN CONTROL FULLY CLOCKWISE  
 † MEASURED FROM PIN 8 OF V17  
 ■ MEASURED IN "CW" POSITION  
 ‡ MEASURED FROM -50VDC LINE

## TUNING CONTROL FULLY CLOCKWISE



## DIAL CORD STRINGING